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1 Introduction

To ensure that the platform is used regularly, a useful and to the students' needs adapted GUI is needed. The most important goal is to get the Business Information Technology (BIT) community closer together and let them help each other through Dropify. Before the digitalization and the advent of the internet, students had restricted access to information. With only a few avenues for acquiring knowledge, the process was straightforward and transparent for all students. Nowadays, students enjoy access to an abundance of information, but this has also led to an almost infinite array of ways to obtain it. Although students receive the same input from their professors, the methods they use to deepen their understanding of the material can vary significantly.

1.1 Role of Dropify

The prevalence of online platforms, including Moodle and Teams, used for sharing lecture notes and slides at University of Applied Sciences and Arts Northwestern Switzerland (FHNW), has fragmented the landscape, making it difficult for students to find relevant study materials efficiently. To overcome this obstacle, students have resorted to external platforms, raising concerns about security and accessibility. To address this challenge, this document introduces Dropify, a web-based platform specifically tailored to meet the diverse needs of FHNW students. Dropify, a cloud-based system, aims to consolidate existing cloud systems within the university while enhancing their functionality. It empowers students to upload, rate, and access a wealth of valuable study materials, including self-authored summaries, links to informative websites, and links to explanatory YouTube videos, additional exercises, and more. To ensure security and accessibility, we have limited file uploads to PDF format. To encourage regular platform usage, a user-friendly and responsive interface is essential. Ultimately, Dropify seeks to strengthen the BIT community by promoting peer-to-peer collaboration and resource sharing.

2 Company and Project Goals

The primary objective of Dropify is to foster collaboration among students, thereby strengthening the class community, and providing them with a centralized platform for easy access to all pertinent study materials. The company and project goals are delineated as follows:

Company Goals	Project Goals
1. Centralization of knowledge	Implement a platform where the material related to BIT is stored and easily accessible.
2. Improving cooperation	Enhance the cooperation among students through the sharing of personal documents.
3. Increase students‘ success rate	Allow students to search for specific documents and explore them in depth.
4. Ensure the quality of the material	Establish a baseline quality standard using an AI module and incorporate a feedback feature enabling users to personally assess the quality of a file.
5. Increase the usage of the platform	Provide a user-friendly interface and an introductory tutorial to get familiar with the platform.

Table 2-1: Company and Project Goals

3 Stakeholders

3.1 Overview of Stakeholders

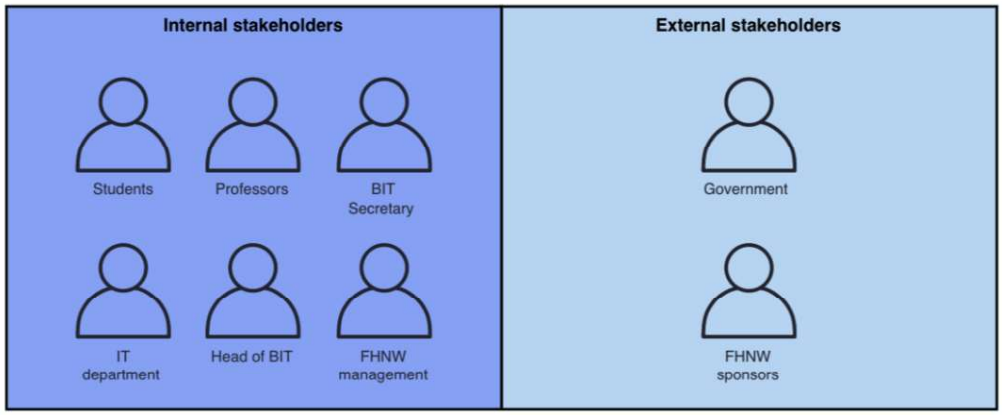

Figure 3-1: Overview of Stakeholders

3.2 Stakeholders' description

The platform is meant to give easy access to the students of the Business Information Technology course. This analysis displays in which context different users of the platform interconnect with each other. Which stakeholder is doing what.

3.2.1 Students

Stakeholder	Students
Position	Students who use the data to learn for their subjects
Role	Download and upload files
Goals	Access to more resources and success during their studies
Knowledge	Processes to download and upload data
Importance	High
Influence	Low
Motivation	Low

Table 3-1: Stakeholder: Students

3.2.2 IT Department

Stakeholder	IT department
Position	Checking on the IT systems and supporting the site administrators
Role	Technical support and uptime responsibility, manages tech resources
Goals	Website application
Knowledge	IT systems and website structure
Importance	Low
Influence	Low
Motivation	Medium

Table 3-2: Stakeholder: IT Department

3.2.3 Professors

Stakeholder	Professors
Position	Checking the content and giving the consent to publish
Role	Uses web-application
Goals	Ensure the quality of the content
Knowledge	How to use the tool (Teaching processes)
Importance	High
Influence	low
Motivation	High – Helping to build a solid base with students

Table 3-3: Stakeholder: Professors

3.2.4 FHNW-Management

Stakeholder	FHNW management
Position	Observe and enforce the rules of the school

Role	**Allocating money into the project, overview over portal reported by Head of BIT**
Goals	**Learn better and help each other, make the school more attractive**
Knowledge	**Reports**
Importance	**Low**
Influence	**High**
Motivation	**High – implement systems that make the school more efficient**

Table 3-4: Stakeholder: FHNW-Management

3.2.5 BIT Secretary

Stakeholder	**BIT Secretary**
Position	**Administration**
Role	**Administration of data**
Goals	**Structure the data**
Knowledge	**Administration of the tool**
Importance	**moderate**
Influence	**low**
Motivation	**medium**

Table 3-5: Stakeholder: BIT Secretary

3.2.6 Head of BIT

Stakeholder	**Head of BIT**
Position	**Being able to observe the site, getting reports on how much the portal is used**
Role	**Analytics**
Goals	**Better insights into the product structure**
Knowledge	**Reporting processes**

Importance	**High - holds significant importance, and he can rely on robust academic knowledge and information**
Influence	**High - The Head of BIT can allocate funds on projects, clearly less than the higher levels of the management**
Motivation	**Medium**

Table 3-6: Stakeholder: Head of BIT

3.2.7 FHNW Sponsors

Stakeholder	**FHNW sponsors**
Position	**Supporting the project financially**
Role	**Finances**
Goals	**Having enough money**
Knowledge	**How much money was spent and needs to be spent**
Importance	**Low**
Influence	**Medium**
Motivation	**Medium**

Table 3-7: Stakeholder: FHNW Sponsors

3.2.8 Government

Stakeholder	**Government**
Position	**Enforcing and laying down the law**
Role	**Supervisors of the law**
Goals	**Data safety**
Knowledge	**How rules and what data is processed**
Importance	**High**
Influence	**Low**
Motivation	**Low**

Table 3-8: Stakeholder: Government

3.3 Importance – Influence Diagram

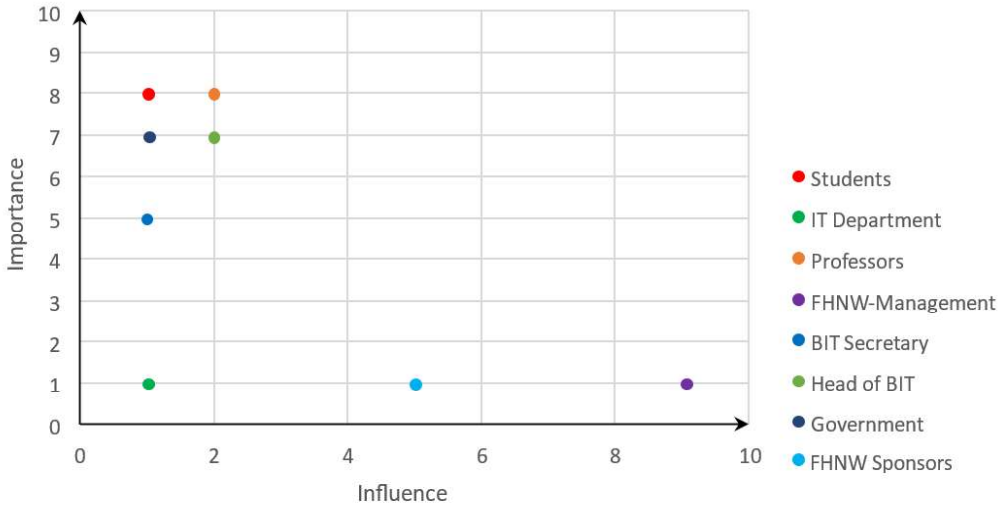

Figure 3-2: Importance - Influence Diagram

This diagram shows how importance and influence corelate to each other for every stakeholder. Importance in the sense of how much they can contribute to the requirements of the project. The influence is if they have the capability of assigning new funds or new team members.

3.4 Importance – Motivation Diagram

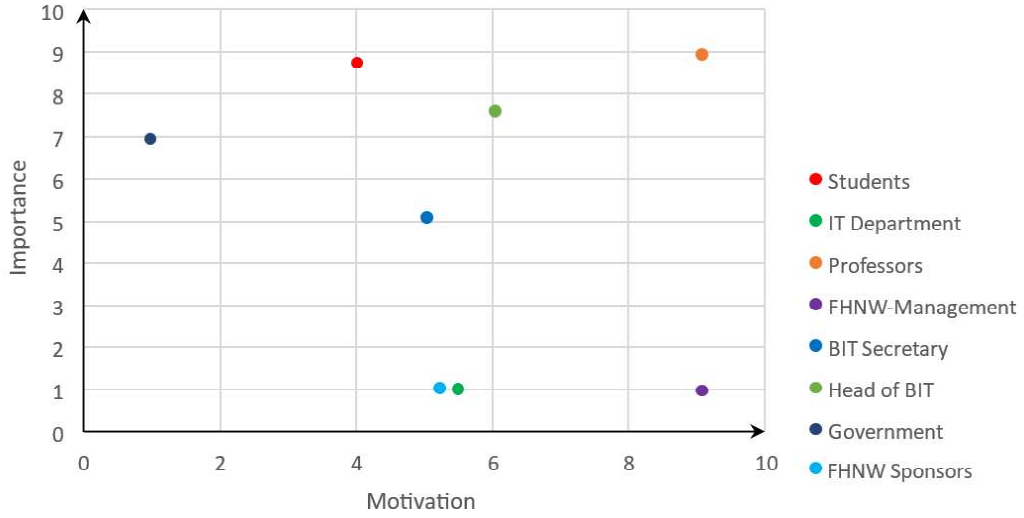

Figure 3-3: Importance - Motivation Diagram

The Importance – Motivation diagram displays the connection between different stakeholders and their motivation in the project. For instance, does the FHNW-Management get the benefit of being a

better school since the students are more likely to pass their studies through the help of other students.

4 Context Analysis

The graph below, shows the parts involved into our system. It is divided into three main categories: System boundary, Context boundary and Outside context boundary.

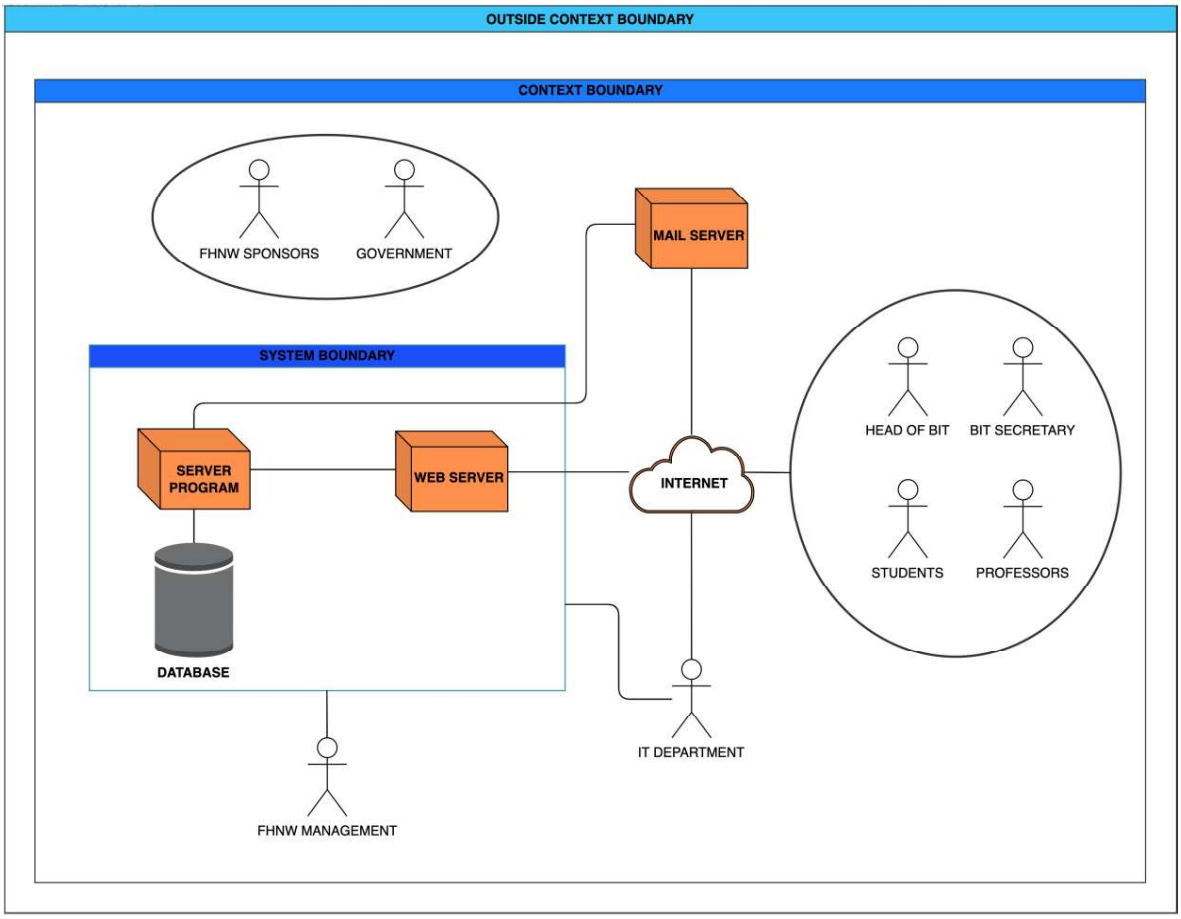

Figure 4-1: Context and System Boundary

4.1 System Boundary

The platform is primarily accessed through the internet. Upon user interaction, data is directed to the web server, which uses the HTTPS protocol, ensuring secure communication. This initiates the processing phase. Following this stage, data is transmitted to the server program, serving as an intermediary to ensure the information flow. Subsequently, the data, which includes user access details, notification preferences, and file records, is stored in the database. The server program, is directly connected to the mail server, facilitating user notifications for events like a password reset.

4.2 Context Boundary

Within the context boundary, two primary categories of actors emerge, delineated as internal and external stakeholders. Internal actors engage directly with the platform, while external actors are aware of the platform's existence but have only indirect interactions.

Internal actors further divide into two distinct categories: the **user's group**, encompassing "the Head of BIT, BIT secretary, Professors, and Students". The user's group accesses the platform via the internet. The IT department has direct access to the system boundary, allowing for prompt responses to any technical issue that may arise. Simultaneously, FHNW management ties into the system boundary, utilizing this connection for systematic data collection.

Conversely, external actors include FHNW sponsors and the Government, both represented within the context boundary. FHNW sponsors contribute funds to the school that can be allocated to the project, while the Government holds the responsibility of overseeing the enforcement of data protection regulations.

5 Requirements and Elicitation Techniques

Nr.	Technique	Method	Description
1	**Creativity**	Brainstorming	Collection of ideas of the project and definition of basic requirements
2	**Questionnaire**	Survey	Survey among BIT students
3	**Interview**	Interview	Interview with professors and the head of BIT

Table 5-1: Elicitation Techniques

5.1 Brainstorming

During the brainstorming session, everyone had the opportunity to contribute their own ideas. In our discussions, we initially explored the platform's appearance and essential features beneficial for students. We outlined the core concept as a well-organized space where users could share files and explore additional materials to delve deeper into specific topics.

Subsequently, we defined more in detail the fundamental functions by creating a draft of a requirements list which included:

1	**User login**	
2	**User logout**	
3	**Removal of the account**	
4	**Modification of the account**	
5	**Uploading course material**	
6	**Downloading course material**	
7	**Approving course material**	
8	**Modify course material**	
9	**Quality control**	Quality control for documents overseen by a professor
10	**Assistance function**	Function that allows users to require for technical assistance
11	**Automatic data backup**	
12	**Files statistics**	
13	**Course selection**	
14	**Mobile accessibility**	
15	**Moodle integration**	

Table 5-2: Requirements Draft

5.2 Survey

In order to gather more requirements and refine the one we had already, we conducted a survey among BIT students. As main users of the platform, students' point of view has been crucial. We created a form which was divided into four categories of questions.

5.2.1 General

Encompassing questions designed to gather feedback on the utility of our platform and identify any details that may have been omitted.

- Do you sometimes have difficulty to find the right information you need?

- Would it be useful to have a web portal with other students' summaries and other useful documents?

5.2.2 Satisfiers

Encompassing questions designed to validate and further expand the satisfiers within our list.

- Is there a particular user support or help center feature that would contribute to your satisfaction when using the platform?

- What role do customizable user settings and personalization play in your overall experience?

5.2.3 Dissatisfiers

Encompassing questions designed to validate and further expand the dissatisfiers within our list.

- Is there any feature that would affect your experience in a bad way?

- How important is the ability to choose from different languages, in your opinion?

5.2.4 Delighters

Encompassing questions designed to validate and furtherly expand the delighters within our list.

- How would you feel about advanced search and filtering options that make it incredibly easy to find and access shared files?

- How would you feel about personalized user avatars or themes that reflect your personality or interests within the platform?

5.3 Interviews

The interviews were carried out to align with the requirements we collected during the survey and to obtain feedback based on the expertise of each individual interviewed. Our primary focus was on gathering feedback from individuals with a strong technical background. This was crucial in determining the precise criteria for evaluating the technical aspects of our project.

5.3.1 Interview with Professor Giovanoli and Telesko

We conducted the first round of interviews to gather insights from people with a strong technical background. Throughout Rainer's opinion we found optimism regarding the project's feasibility. He highlighted the importance of robust security measures like encryption and user-controlled access to safeguard students' shared files. Specific concerns about file types were downplayed. Giovanoli approved the concept, considering the platform type less important. He envisioned a web portal featuring documents uploaded from students and suggested incorporating file size limits and a rating system for content quality, placing priority on these aspects over security and access control.

5.3.2 Interview with Michael Pülz

We conducted a concluding interview with the head of BIT to finalize the draft of the requirements list. Michael expressed interest in the project but foreseen potential resistance from teachers regarding the sharing of solutions. He emphasizes a notable concern related to material quality responsibility, proposing a shift towards students taking accountability for the quality of their content. Additionally, Michael identified a critical performance challenge, underscoring the necessity for robust file version control to ensure the currency of files within the system.

5.3.3 Conclusions drawn from the interviews

Following the interviews, we gained a more distinct understanding of our requirements. We addressed significant concerns, including the platform type and the feasibility of quality control supervised by professors. Ultimately, we ruled out requirements such as Moodle integration and resolved the quality control issue by implementing AI-Enhanced Quality Management and file rating.

5.4 Requirements according to KANO categories

Throughout the elicitation techniques (brainstorming session, survey, and interviews) we derived the following requirements list:

KANO category	Requirements
Dissatisfiers	• User Login • User Logout • Account Creation • Removal of the Account • Modification of the Account • Upload Files • Download Files • Deletion Area
Satisfiers	• Filter Function • Text Search • Course Selection • User Support Center • Structured Tutorial
Delighters	• Custom User Notification • Deleted Files Backup • File Rating • AI-Enhanced Quality Management

Table 5-3: Requirements according to KANO Categories

6 UML Documentation

6.1 Dropify Package Overview

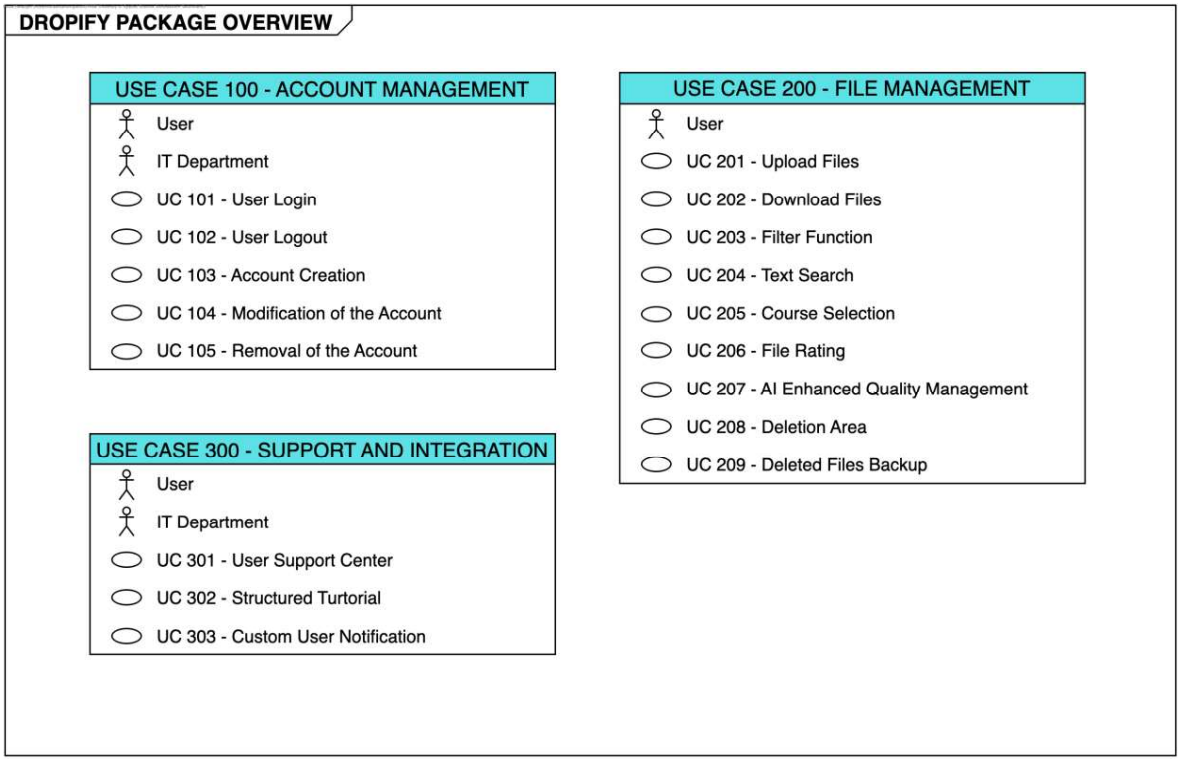

Figure 6-1: Dropify Package Overview

6.2 Use Case 100 - Account Management

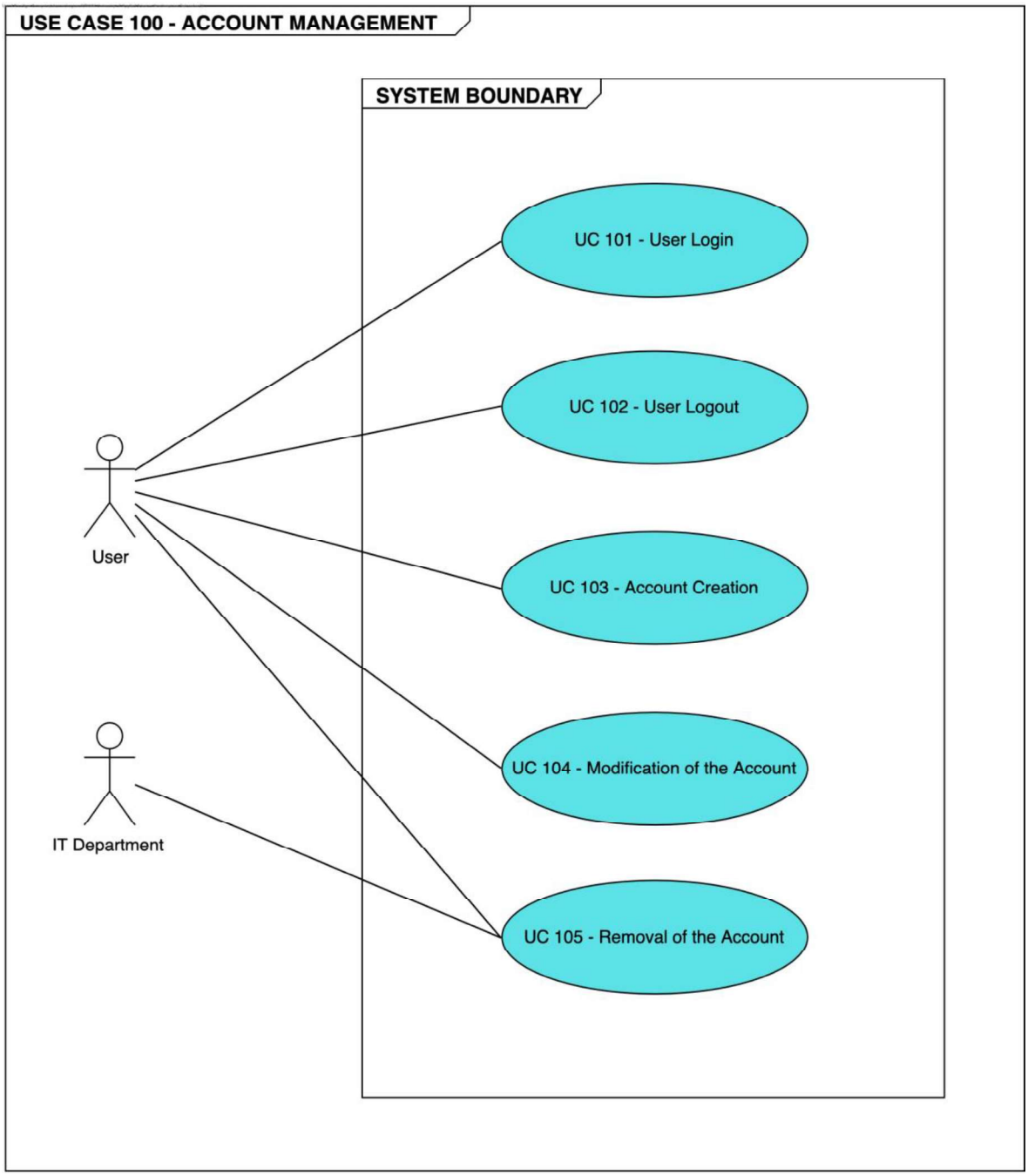

Figure 6-2: Use Case 100 - Account Management

6.2.1 Use Case 101 - User Log-in

Use Case ID 101	**User Login**		
Description	The system shall allow the user to log in.		
Responsible Actor	User		
Participating Actor	None		
Trigger	User clicks on “Login” button.		
Preconditions	UC-103: Account creation, the account exists.		
Input	E-mail address and password.		
Scenario	Nr.	Main	Nr. Alternative
	1	The user is in the login and account creation page.	
	2	The user clicks the “Login” button.	
	3	The user enters the email address and the password.	
	4	The user presses the “login” button.	
	5	The System validates the data.	
	5	Correct credentials result in access being granted to the user's account.	5a If the credentials are incorrect, the system shows an error message. The user can click “forgot password” and reset the password.
			5b The mail server sends an E-mail to the user with instructions for resetting the password.
			5c For security reasons, the system might lock the account if the user enters incorrect credentials multiple times.
Results	The system prompts a confirmation for successful log in and advances to the main page.		
Postconditions	User has access to the web application.		

Table 6-1: Use Case 101 - User Log-in

6.2.2 Use Case 102 - User Log-out

Use Case ID 102	**User Logout**			
Description	The system shall allow the user to log out.			
Responsible Actor	User			
Participating Actor	None			
Trigger	User presses the “Logout” button.			
Preconditions	UC 101: The user must be logged in.			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user clicks the “Logout” button.	2a	If the user is inactive for an extended period, an automatic timeout occurs, the system logs the user out.
	2	System asks user for confirmation.		
	3	System logs out the user and informs the user that the log-out was successful.		
Results	The system displays the logout page.			
Postconditions	User is logged out.			

Table 6-2: Use Case 102 - User Log-out

6.2.3 Use Case 103 - Account Creation

Use Case ID 103	**Account Creation**			
Description	When required, the system shall allow the user to create a new account.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user presses the button “reate new account”.			
Preconditions	The user must be part of the BIT program.			
Input	Name, e-mail address, enrollment number, and password			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user is in the login/create account page.		
	2	The user initiates the account creation process by clicking the “create new account” button.		
	3	The registration window opens and the user must fill in Name, E-mail address, Enrollment number and password fields.	3a	The user can decide to press the «Cancel» button and interrupt the process. (Return to step 1)
	4	The user presses the “confirm” button to continue.	4a	The data input in the data fields are invalid (Name, E-mail address, Enrollment number and password). (Return to step 1)
	5	The system notifies that the account was created successfully.		
	6	The system saves the credentials in the database.		
Results	None			
Postconditions	Users can log-in to the platform			

Table 6-3: Use Case 103 - Account Creation

6.2.4 Use Case 104 - Modification of the Account

Use Case ID 104	**Modification of the account**			
Description	The system shall allow the user to modify the information of the account.			
Responsible Actor	User			
Participating Actor	None			
Trigger	User clicks “Personal details” button.			
Preconditions	UC 101: The user must be logged in.			
Input	The user decides to change the accounts information.			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user clicks the “Personal Details” button under “Settings”.		
	2	The system opens a window with a list of choices specifically related to privacy settings and notification preferences.		
	3	User can change the credentials (Name, E-mail, password, and personal data).		
	4	The user presses the “confirm” button to confirm the changes.		
	5	The system updates the corresponding account information.	5a	The user input invalid data
			5b	The system informs the user by printing an error message.
			5c	Return to step 3.
Results	None			
Postconditions	Account data is saved and stored.			

Table 6-4: Use Case 104 - Modification of the Account

6.2.5 Use Case 105 - Removal of the Account

Use Case ID 105	Removal of the account			
Description	When required, the system shall allow the user to remove the account.			
Responsible Actor	User			
Participating Actor	IT department			
Trigger	User must click the “delete account” button.			
Preconditions	UC 101: The user must be logged in.			
Input	E-mail and Password			
Scenario	Nr.	Main	Nr.	Alternative
	1	the user clicks “Delete account” under “Settings”. The System initiates the account removal.	1a	User clicks “Cancel”, to interrupt the process.
	2	The system request confirmation from the user to ensure they want to proceed with the removal.	2a	For security reasons, the system might lock the account if the user enters incorrect credentials multiple times.
			2b	The user is asked to contact the IT-department to unlock the account.
	3	The system permanently deletes the user account and all associated data.		
Results	Data related to the account are deleted.			
Postconditions	Account is removed from the system.			

Table 6-5: Use Case 105 - Removal of the Account

6.3 Use Case 103 - Activity Diagram

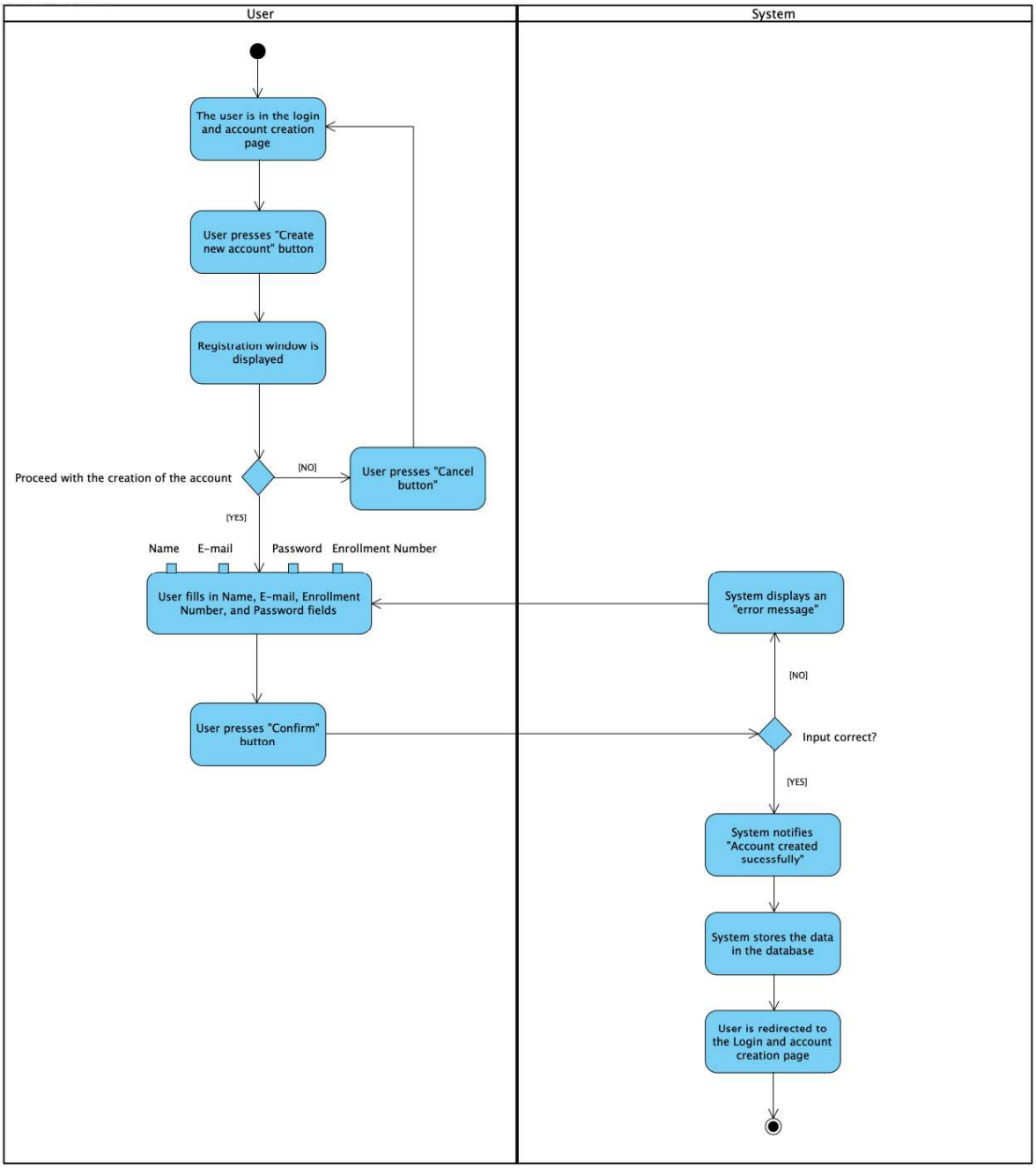

Figure 6-3: Use Case 103 - Activity Diagram

6.4 Use Case 101 - Sequence Diagram

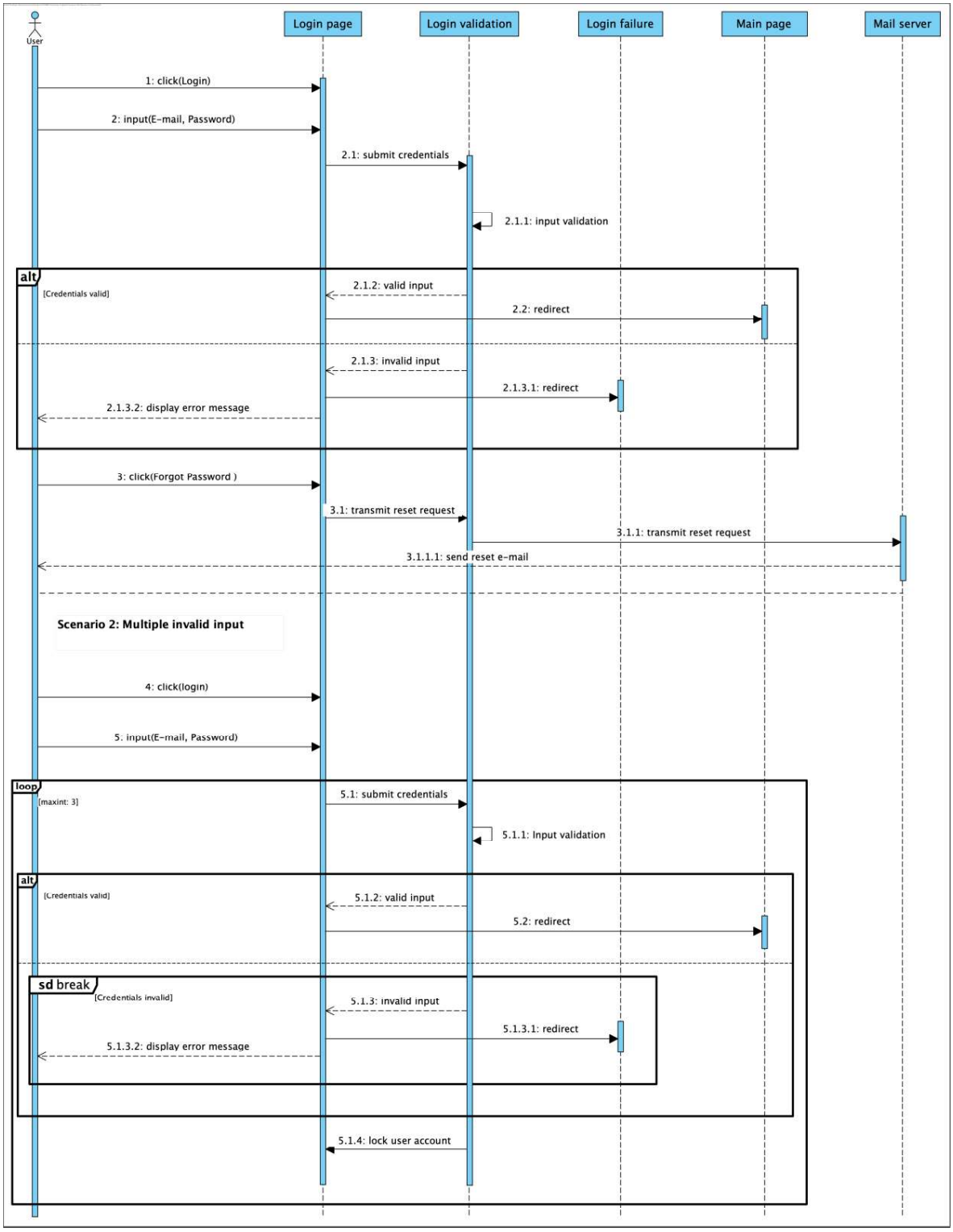

Figure 6-4: Use Case 101 - Sequence Diagram

6.5 Use Case 200 - File Management

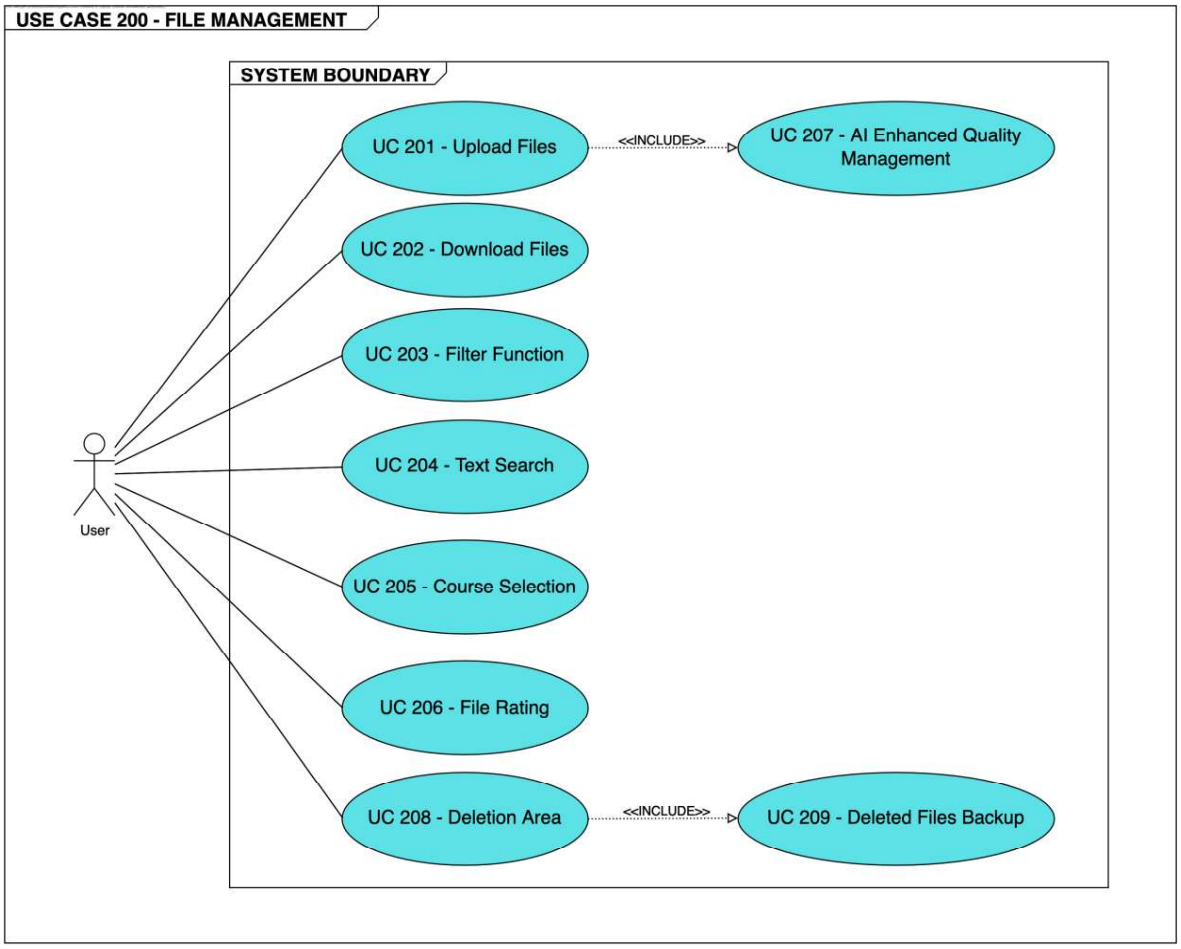

Figure 6-5: Use Case 200 - File Management

6.5.1 Use Case 201 - Upload Files

Use Case ID 201	**Upload files**			
Description	The system shall allow the user to upload one or multiple files.			
Responsible Actor	User			
Participating Actor	None			
Trigger	User clicks the “Upload” button.			
Preconditions	UC 101: The user must be logged in.			
Input	One or multiple files			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user selects the “Upload” option.		
	2	The submission window opens and the user can drag the desired file in it.		
	3	The user presses the “submit” button and triggers the quality control. **<<include>> UC-207 AI-Enhanced Quality Management.**		
	4	The document is uploaded and stored in the database.		
Results	New file.			
Postconditions	The file exists at the specified directory.			

Table 6-86: Use Case 201 - Upload Files

6.5.2 Use Case 202 - Download Files

Use Case ID 202	**Download files**			
Description	The system shall allow the user to download one or multiple files.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user must click the “Download” button.			
Preconditions	UC 101: The user must be logged in UC-201: The file exists			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user clicks “download” button next to the file.		
	2	The system processes the download request.		
	3	The web server checks the file’s availability in the database.		
	4	The file is downloaded		
Results	The result is the requested file in PDF format.			
Postconditions	The file is downloaded.			

Table 6-97: Use Case 202 - Download Files

6.5.3 Use Case 203 - Filter Function

Use Case ID 203	**Filter function**			
Description	The system shall allow the user to filter files.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user must click the “Filter” icon.			
Preconditions	UC 101: The user must be logged in UC 201: The file exists.			
Input	The user fills in different filter criteria.			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user clicks the “filter” icon.		
	2	The system shows a filter window with different fields (Title, Author, Subject, Year, Semester, Chapter).		
	3	The user fills in the filtration fields.		
	4	The user presses the “submit” button and the system researches the files with the corresponding features.	4a	The file does not exist.
			4b	The system shows “No existing file”.
			4c	Return to step 3.
	5	The file is found.		
Results	A topic, time, person, subject related list of documents.			
Postconditions	The system shows the list of documents.			

Table 6-80: Use Case 203 - Filter Function

6.5.4 Use Case 204 - Text Search

Use Case ID 204	**Text search**			
Description	The system shall allow the user to search for files.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user must click on the “Search bar”.			
Preconditions	UC 101: The user must be logged in UC 201: The file exists.			
Input	The user types in the name of the file.			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user clicks on the search bar and inputs the name of the file.		
	2	The user presses “Enter” and the system searches for the file.	2a	The file does not exist.
			2b	The system shows “No existing file”.
			2c	Return to step 1.
	3	The result is displayed.		
Results	A topic, time, person, subject related list of documents.			
Postconditions	The system shows the list of documents.			

Table 6-91: Use Case 204 - Text Search

6.5.5 Use Case 205 - Course Selection

Use Case ID 205	**Course selection**			
Description	The system shall allow the user to select courses.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user must click on the “Course” icon.			
Preconditions	UC 101: The user must be logged in The course is available			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user clicks on the desired course.		
	2	The course is opened from the database. The user is redirected to the course page.		
Results	The user is redirected to the selected course.			
Postconditions	The page associated with the course is displayed.			

Table 6-12: Use Case 205 - Course Selection

6.5.6 Use Case 206 - File Rating

Use Case ID 206	**File rating**			
Description	The system shall allow the user to rate a file.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user presses the “Rate” button.			
Preconditions	UC 101: The user must be logged in UC 201: The file exists			
Input	User presses the submit button			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user choses a file.		
	2	The user clicks the “Rate” button near the file.		
	3	The System prints out a rating pop-up window, where the user is asked to rate the file from 1 to 5 stars.	3a	The user does not want to rate the file.
			3b	The user presses the “Close” button.
			3c	The pop-up window is closed.
	4	The user presses the “Submit” button and the system saves the feedback.		
Results	New feedback is saved.			
Postconditions	The file’s rating is updated based on the user’s input.			

Table 6-13: Use Case 206 - File Rating

6.5.7 Use Case 207 - AI-Enhanced Quality Management

Use Case ID 207	**AI-Enhanced Quality Management**			
Description	When the user uploads a file, the system shall check for the quality of the document.			
Responsible Actor	System			
Participating Actor	None			
Trigger	The control is triggered when the user presses the “Submit” button to upload the file.			
Preconditions	The user uploads a file.			
Input	File			
Scenario	Nr.	Main	Nr.	Alternative
	1	After the file is uploaded, the AI module is triggered.		
	2	The AI module assess the quality of the document through predefined criteria such as (relevance of the content, accuracy of the information,readability and clarity of the text, quality of images).	2a	The AI module determines that the quality of **the content is not** compliant with the quality criteria.
			2b	The user must revise the material and upload the new version of the file. (Return to step 1)
	3	The AI module determines that the quality of **the content is** compliant with the quality criteria.		
Results	File			
Postconditions	The quality of the content is guaranteed.			

Table 6-104: Use Case 207 - AI-Enhanced Quality Management

6.5.8 Use Case 208 - Deletion Area

Use Case ID 208	**Deletion Area**			
Description	The system shall provide the user with a page where files can be deleted.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user presses the “Trash” symbol.			
Preconditions	UC 101: The user must be logged in UC 201: The file exists			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user presses the “Content settings” option from the “Drop-down list” under “Settings”.		
	2	The system opens a window with a list of the files that the user uploaded.		
	3	The user presses the “Delete” button next to a file.		
	4	The system asks the user to confirm the deletion.	4a	The user presses the “Cancel” button to interrupt the process.
	5	The file is deleted but a copy is saved in the database **(<<include UC 209>>)**		
Results	None			
Postconditions	A copy of the deleted files is stored in the data-base.			

Table 6-15: Use Case 208 - Deletion Area

6.5.9 Use Case 209 - Deleted Files Backup

Use Case ID 209	**Deleted files backup**			
Description	When the user deletes a file, the system shall automatically create a backup of the file.			
Responsible Actor	System			
Participating Actor	None			
Trigger	The backup is triggered when the user presses the “trash” symbol under “content settings”.			
Preconditions	The user deletes a file.			
Input	Deleted file			
Scenario	Nr.	Main	Nr.	Alternative
	1	The system identifies the deleted file.		
	2	The system archives a copy of the deleted file, preserving its content.		
Results	File backup			
Postconditions	A copy of the deleted files is stored in the data-base.			

Table 6-16: Use Case 209 - Deleted Files Backup

6.6 Use Case 201 + Use Case 207 - Activity Diagram

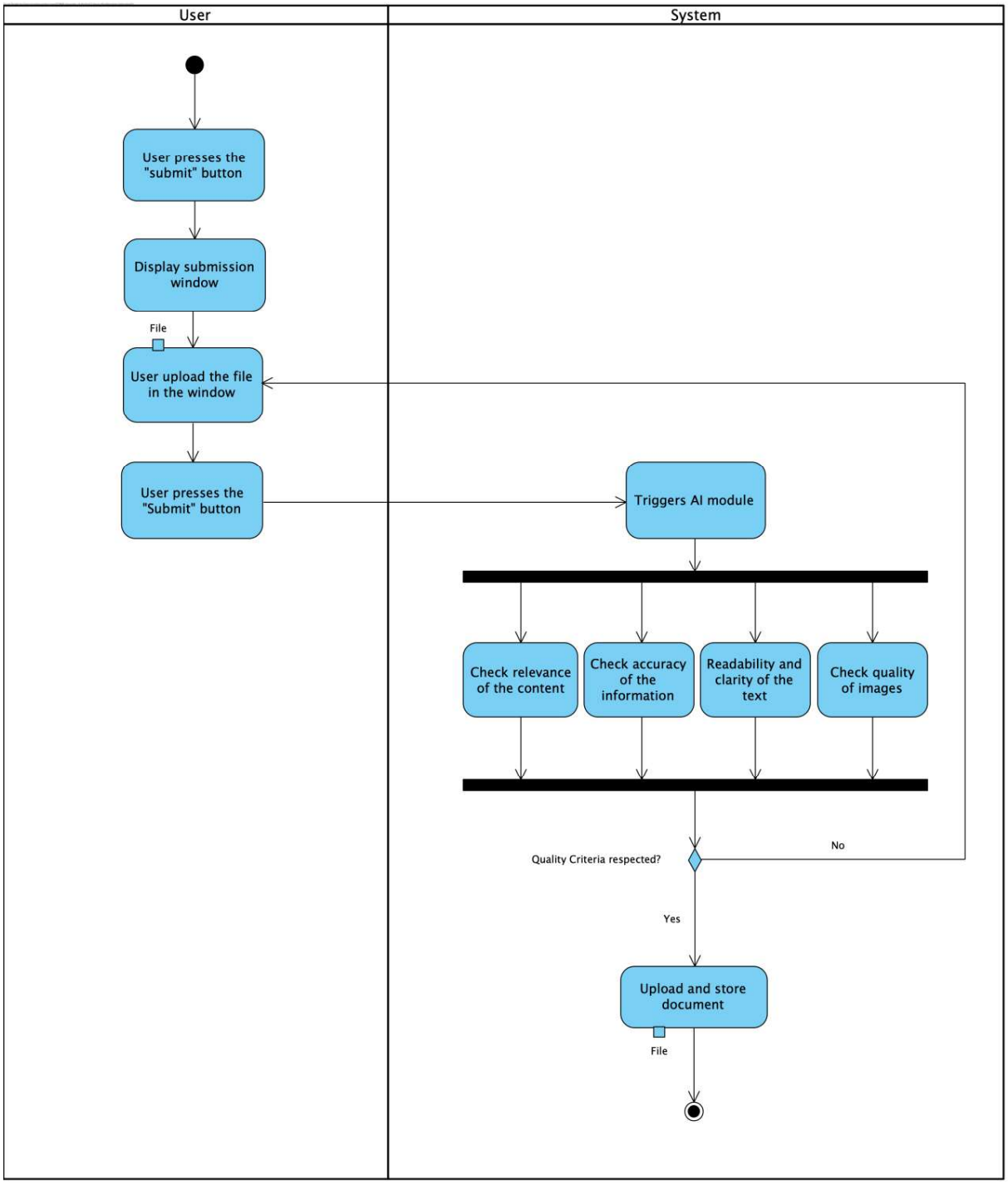

Figure 6-6: Use Case 201 + Use Case 208 - Activity Diagram

6.7 Use Case 300 - Integration and Support

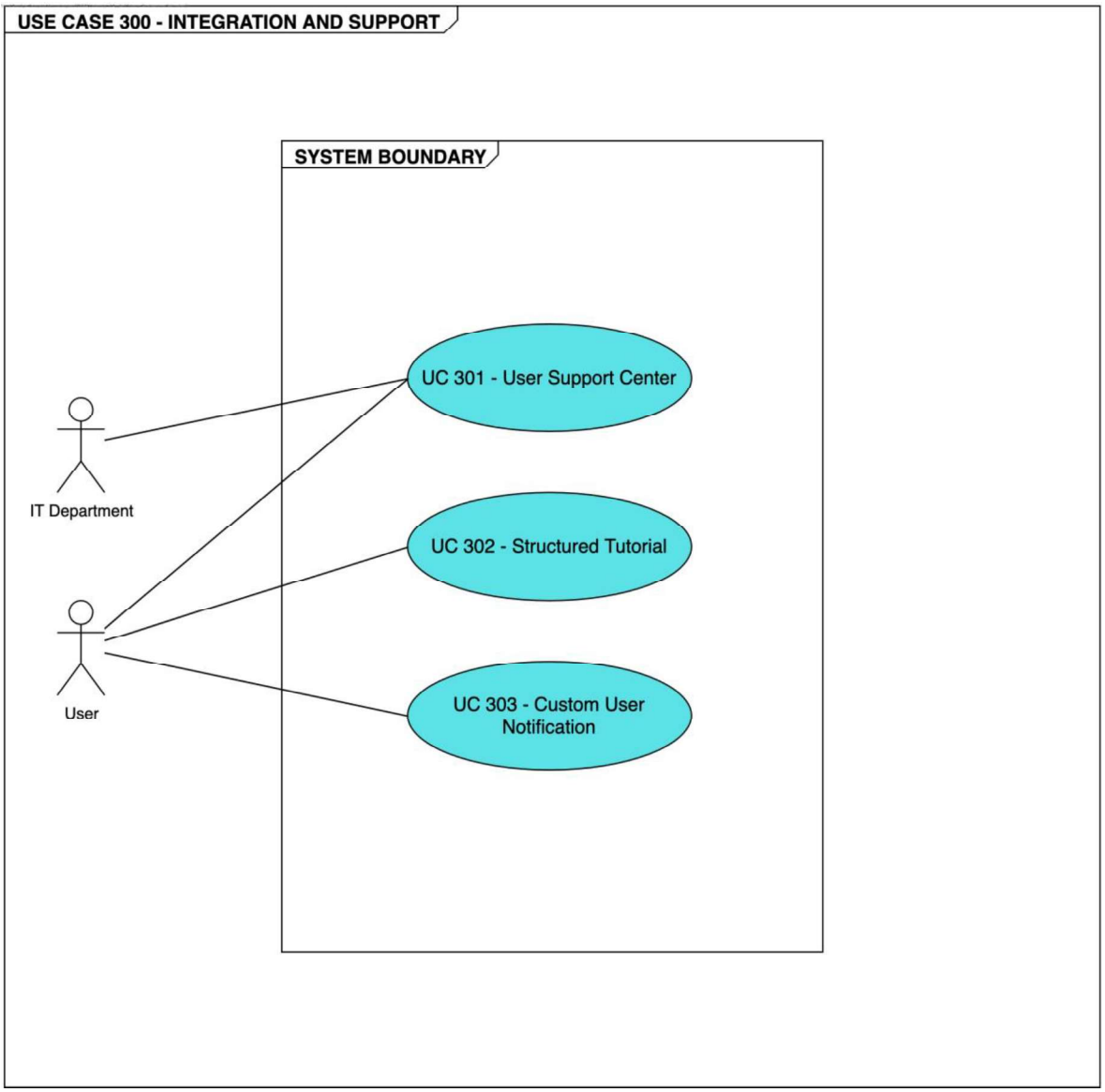

Figure 6-7: Use Case 300 - Integration and Support

6.7.1 Use Case 301 User Support Center

Use Case ID 301	**User support center**			
Description	The system shall allow the user to ask for technical support in case of a problem.			
Responsible Actor	User			
Participating Actor	IT department			
Trigger	The user clicks the “Support” button.			
Preconditions	UC 101: The user must be logged in. The user has a technical problem.			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user presses the “Support” button.		
	2	The system opens a “Contact form” window.		
	3	The user fills in: E-mail, enrollment number, and problem description fields.		
	4	The user presses the “Submit” button and send the request.	4a	The user presses the “Cancel” button to interrupt the request. (Return to step 1)
	5	The IT-department receives the request and opens a ticket.		
	6	The user receives a mail notification from the IT-department.		
	7	The IT-department reviews and evaluates the actions to take.	7a	The description is not clear
			7b	The IT department contacts the user to better understand the problem.
			7c	Move to step 8
	8	The IT-department solves the problem and closes the ticket.		
	9	A notification is sent to the user via E-mail with the confirmation of the problem’s resolution.		
Results	None			
Postconditions	The normal interactions with the GUI are restored.			

Table 6-17: Use Case 301 - User Support Center

6.7.2 Use Case 302 Structured Tutorial

Use Case ID 302	**Structured tutorial**			
Description	The system shall provide the user with a comprehensive tutorial.			
Responsible Actor	User			
Participating Actor	None			
Trigger	The user clicks the “Tutorial” button.			
Preconditions	UC 101: The user must be logged in. Tutorial content and instructional resources are prepared.			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user presses the “Tutorial” button at the top of the page.		
	2	The system opens the “Tutorial” window, and guides the user through the key features of the platform.		
	3	The user concludes the tutorial by selecting the “Close” button at the bottom of the window.		
Results	None			
Postconditions	The tutorial is marked as completed and the user is redirected to the main page.			

Table 6-18: Use Case 302 - Structured Tutorial

6.7.3 Use Case 303 Custom User Notification

Use Case ID 303	**Custom user notification:**			
Description	The system shall provide the user with the possibility to customize the notification settings.			
Responsible Actor	User			
Participating Actor	System			
Trigger	The user selects “Notification settings” under “Account settings”.			
Preconditions	UC 101: The user must be logged in.			
Input	None			
Scenario	Nr.	Main	Nr.	Alternative
	1	The user presses the “Notification preferences” option from the “Drop-down list” under “Settings”.		
	2	The system opens a window with a list of choices specifically related to privacy settings and notification preferences.		
	3	The user clicks the “Confirm” button at the bottom of the page and saves the changes.		
Results	The user is redirected to the main page.			
Postconditions	The system saves and stores the data related to the user preferences.			

Table 6-19: Use Case 303 - Custom User Notification

7 GUI Mockups

7.1 Registration Procedure

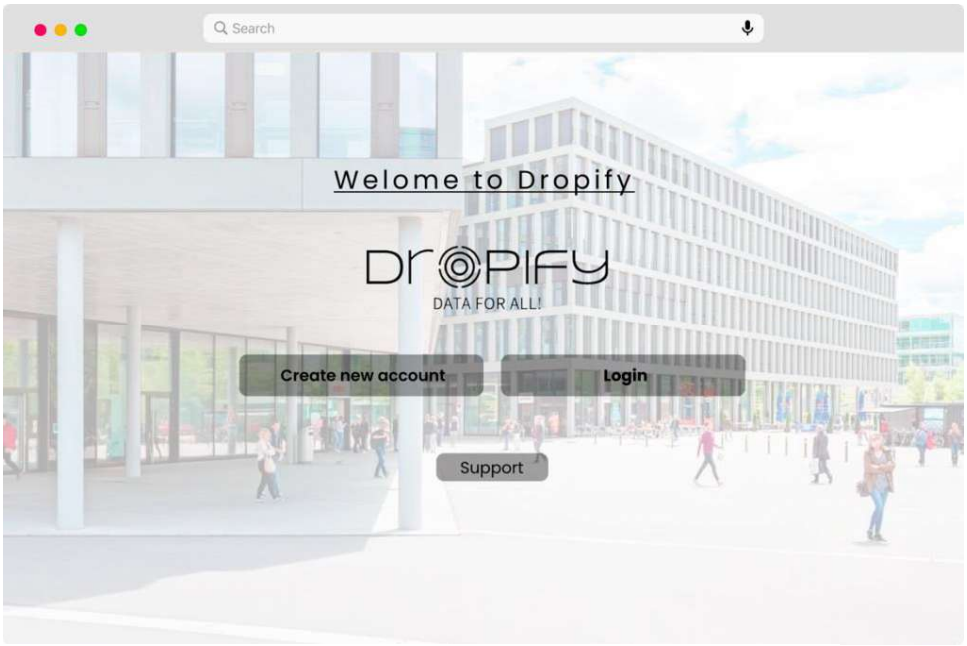

Figure 7-1: Dropify Welcome, Login and Registration page

Upon entering the platform, users are automatically directed to the login and registration page. Two options are available: Individuals who are new to the platform can choose to create a new account, by clicking the “Create new account” button, while those already registered can click the “Login” button for direct access. In the event of any technical issues on the website, users can find assistance by clicking on the “Support” button.

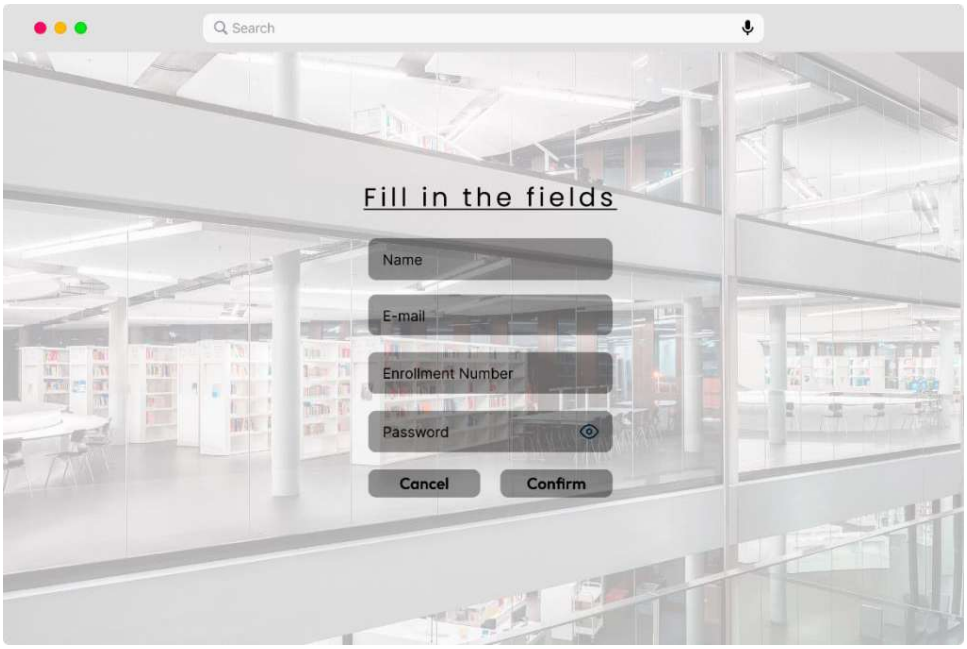

Figure 7-2: Dropify Registration Page

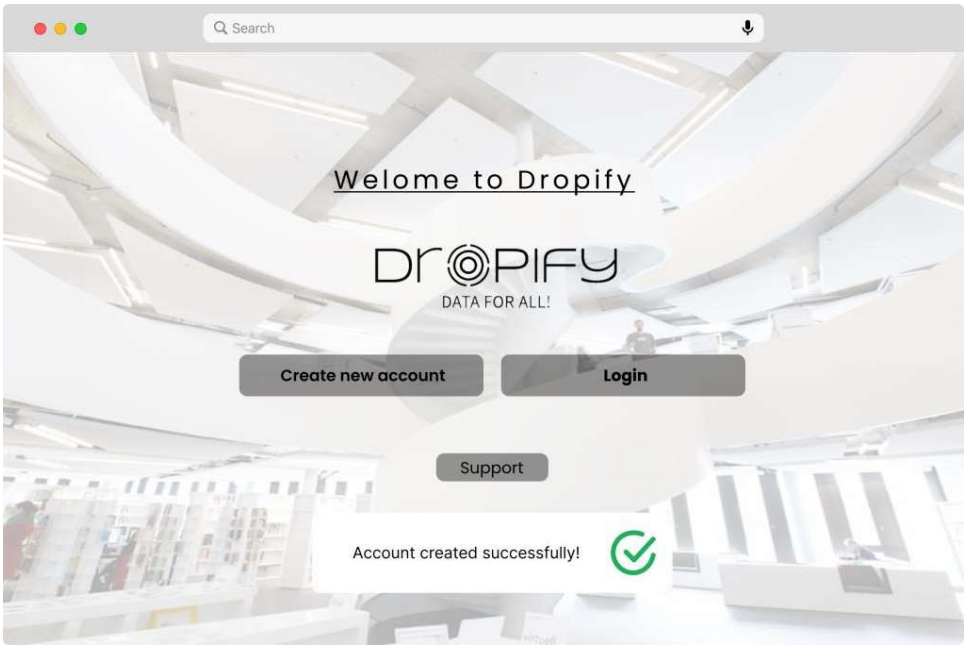

Figure 7-3: Dropify Welcome, Login and Registration page (succesfull account creation)

When users choose to create a new account, they are asked to fill out the following fields: Name, E-mail, Enrollment Number, and Password. Upon selecting the “Confirm” button, if the entered data is accurate, users are redirected to the login and registration page, accompanied by a notification confirming the successful account creation. If users opt not to proceed with creating the account, they can click the “Cancel” button to interrupt the process.

7.2 Login procedure:

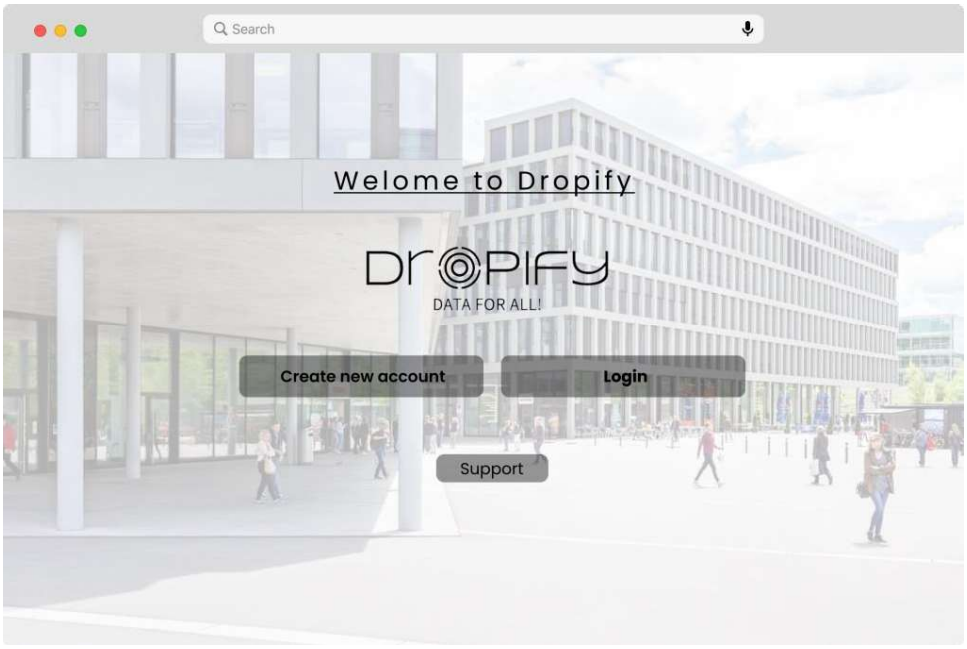

Figure 7-4: Dropify Welcome, Login and Registration Page

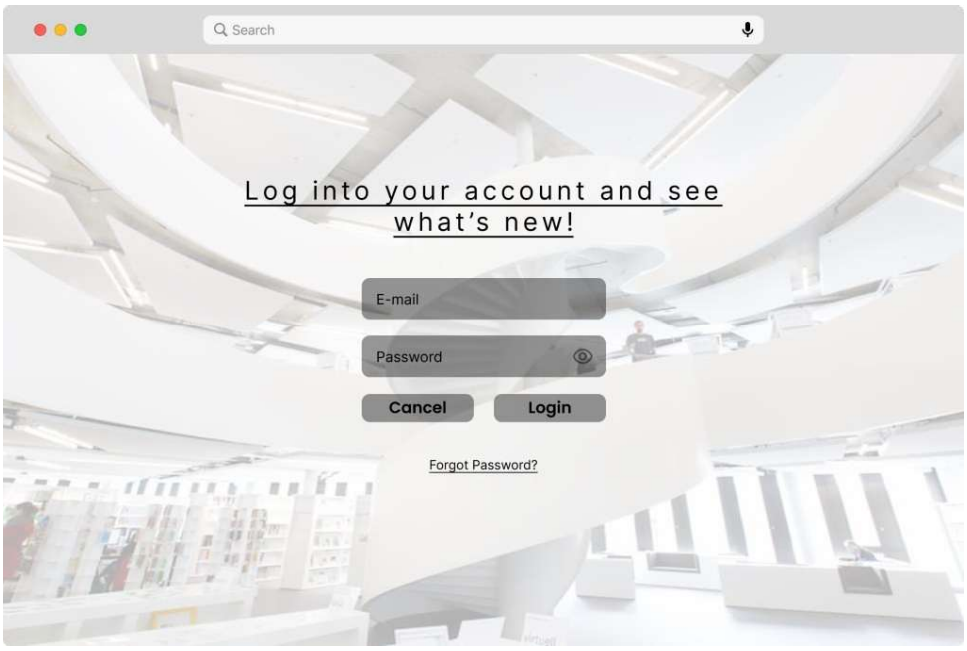

Figure 7-5: Dropify Login Page

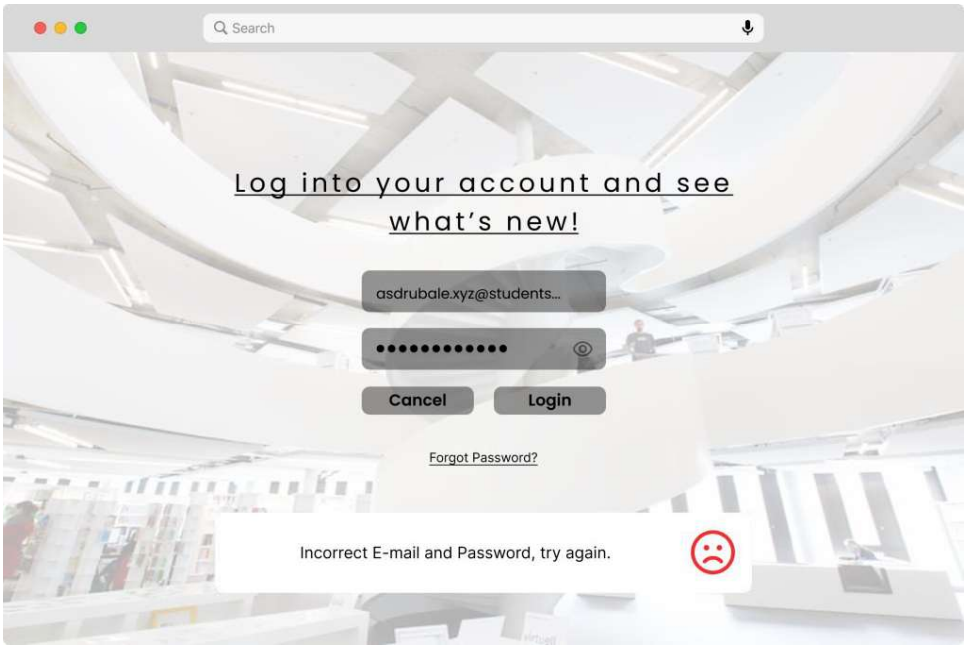

Figure 7-6: Dropify Login Failed Page

Users choose to log in to the platform by clicking the “Login” button, which automatically redirects them to the login page. On the login page, users are prompted to enter their E-mail and password. They can proceed by clicking the ”Login” button to access the main page, or they can press the “Cancel” button to interrupt the login procedure and be redirected to the login and registration page. If, during this process, users input incorrect credentials, the system will display an error message, prompting them to retry the login procedure.

7.3 Platform Navigation

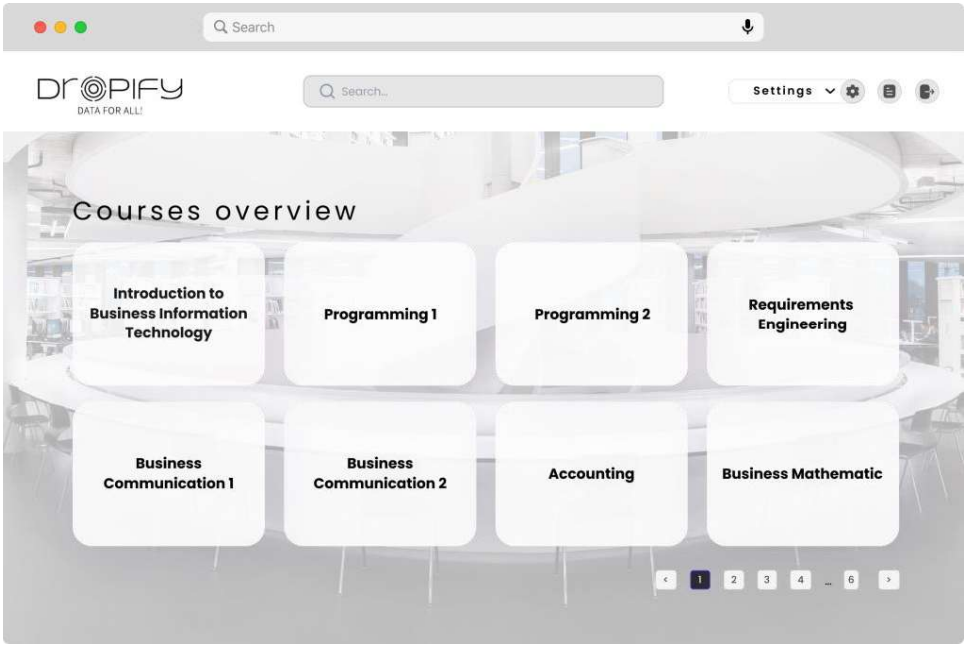

Figure 7-7: Dropify Main page

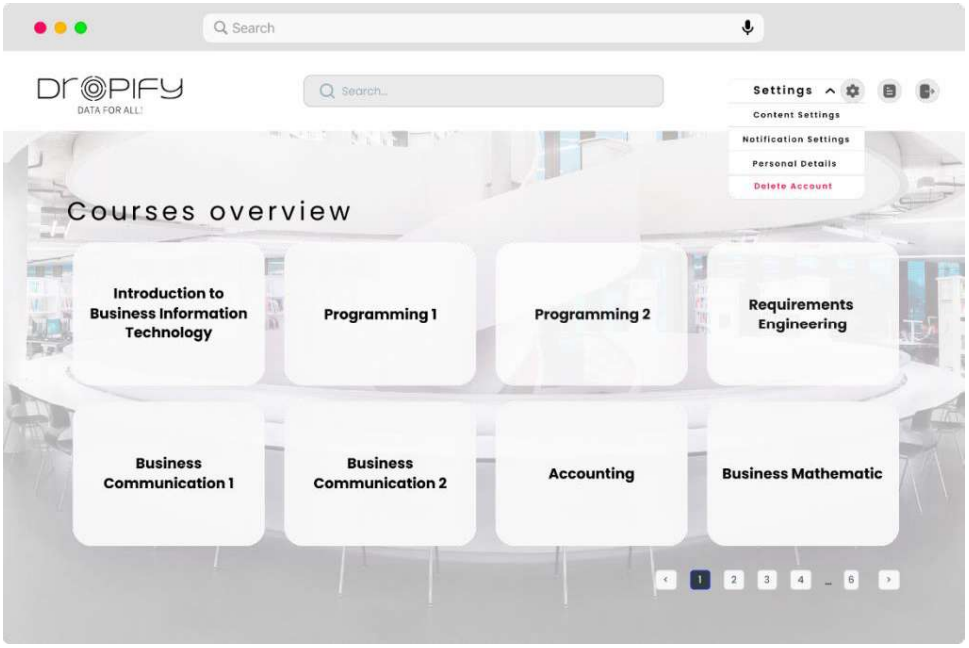

Figure 7-8: Dropify Main Page-extended settings list

After completing the registration and login procedures, users can access the main page of the platform. On this page, users can navigate to the course material and other functionalities by clicking the “Course” icon. Additionally, they can search for specific files using the search bar located at the top of the navigation bar.

In the top right corner of the navigation bar, users will find the settings drop-down list, providing options to manage their materials, notification preferences, personal details, and account deletion. Next to the settings drop-down list, there is the tutorial button, which allows users to see how the platform works. At the top right corner, there is the logout button.

7.4 Download Material

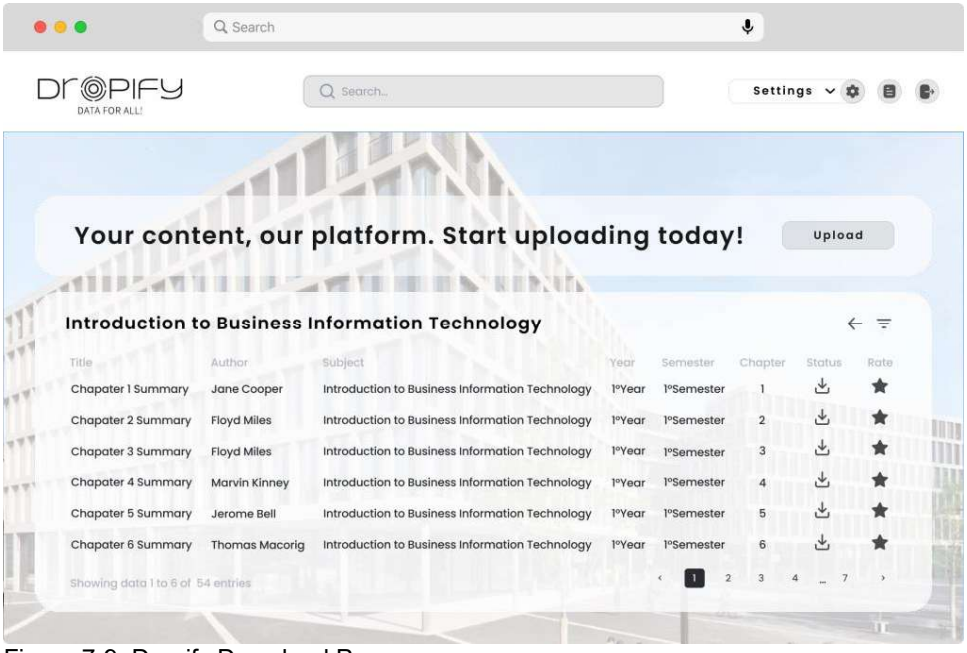

Figure 7-9: Dropify Download Page

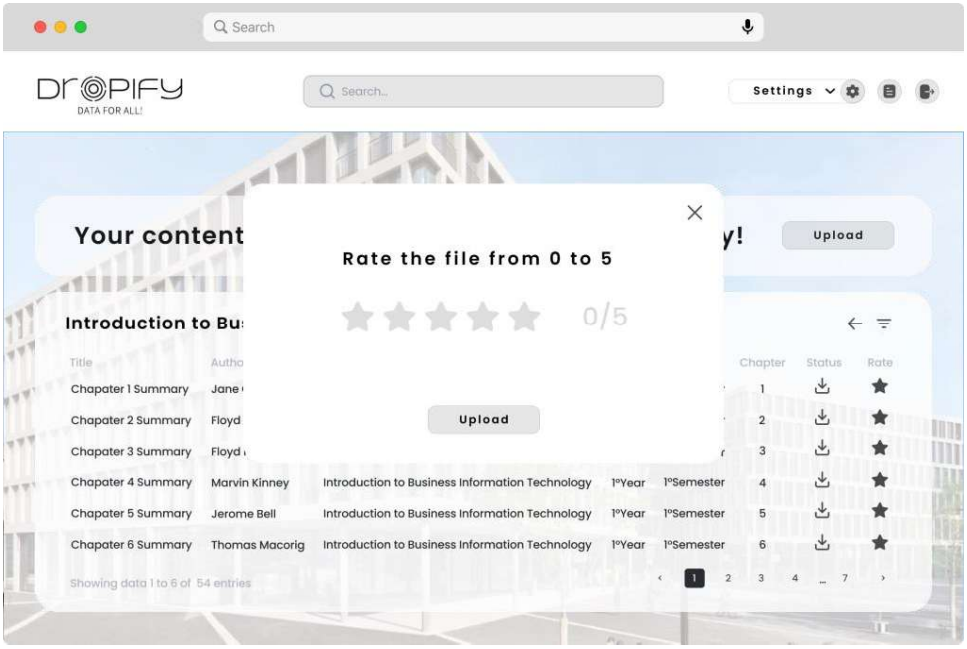

Figure 7-10: Dropify Feedback Notification pop-up window

Once users select the desired course, they are automatically redirected to the “Download page”. Here users have available all the material uploaded from other students. Files are classified for: Title, Author, Subject, Year, Semester, and Chapter. By clicking the “Upload” button, the download procedure is triggered. Next to the download button there is the rate button, which allow users to rate the quality of the file from 0 to 5.

7.5 Upload Material

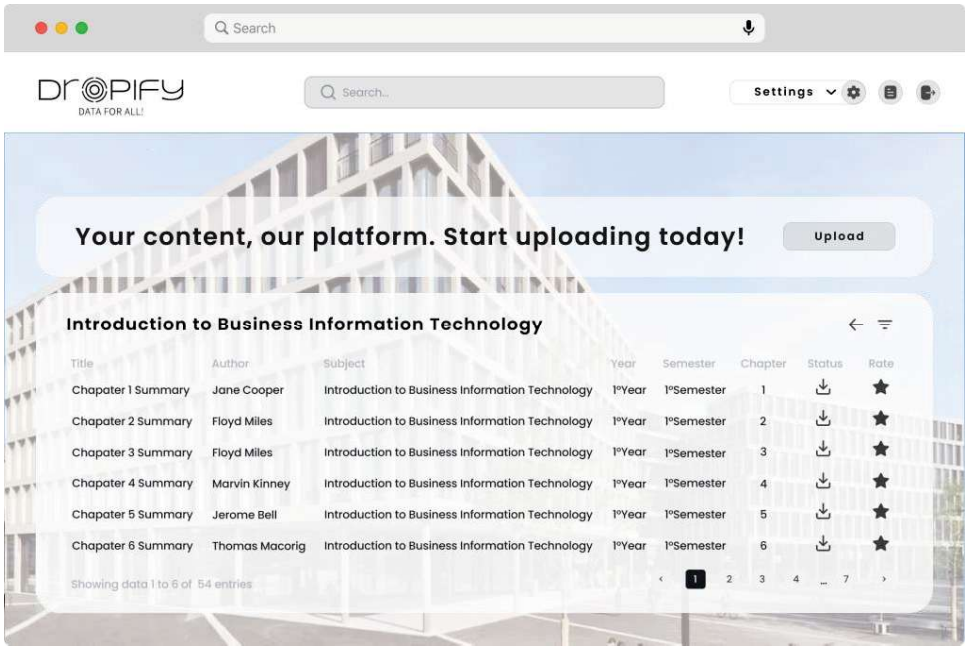

Figure 7-11: Dropify Upload Button

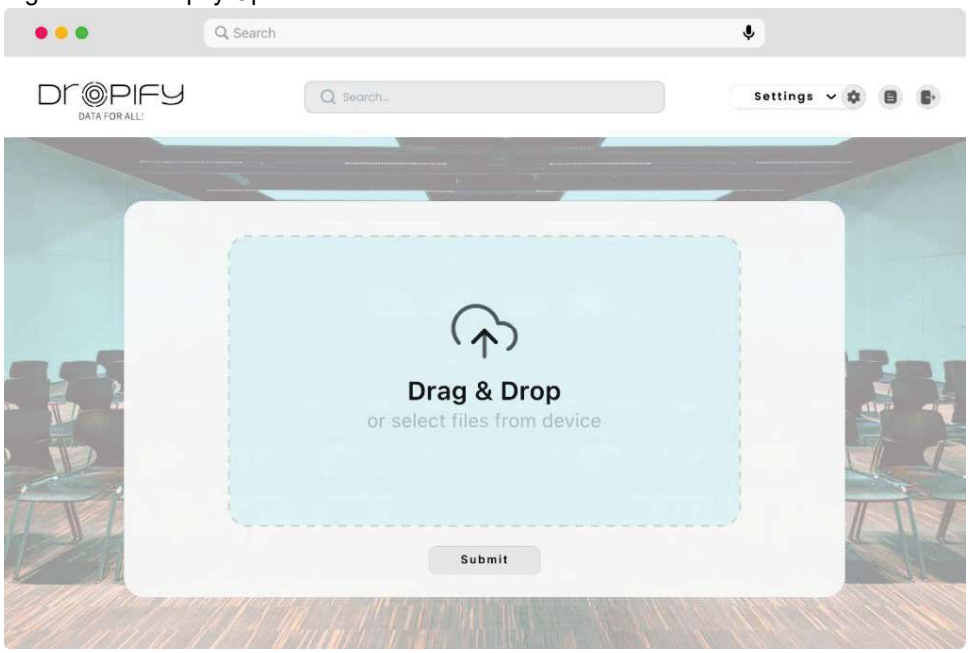

Figure 7-12: Dropify Upload Page

Clicking the upload button in the download page, takes users to the upload page, where they can drag and drop files into the designated box. By clicking the “Submit” button the upload procedure is triggered.

7.6 Technical support:

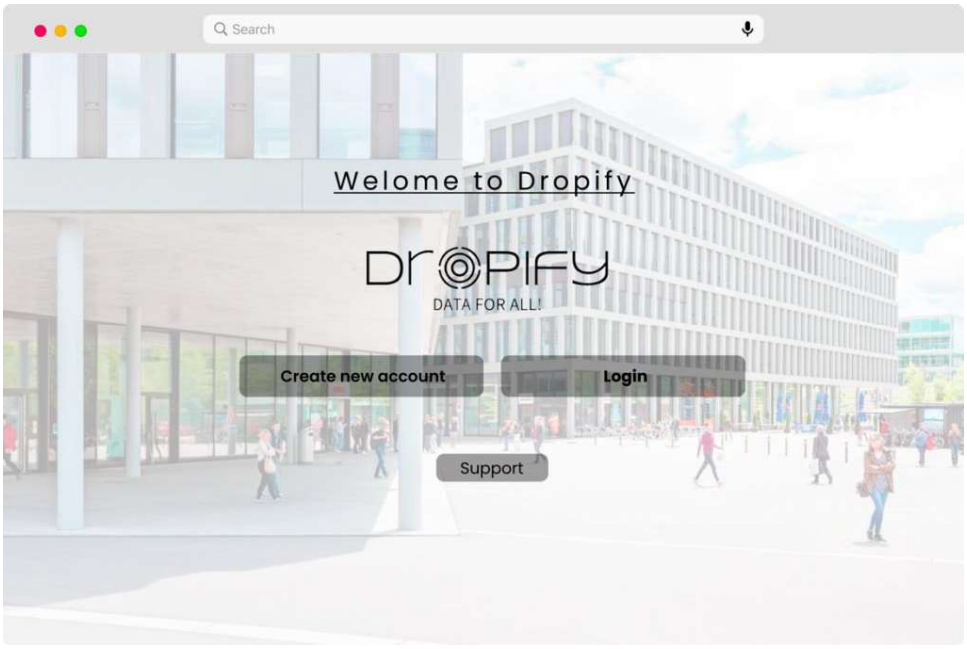

Figure 7-13: Dropify Welcome, Login and Registration Page

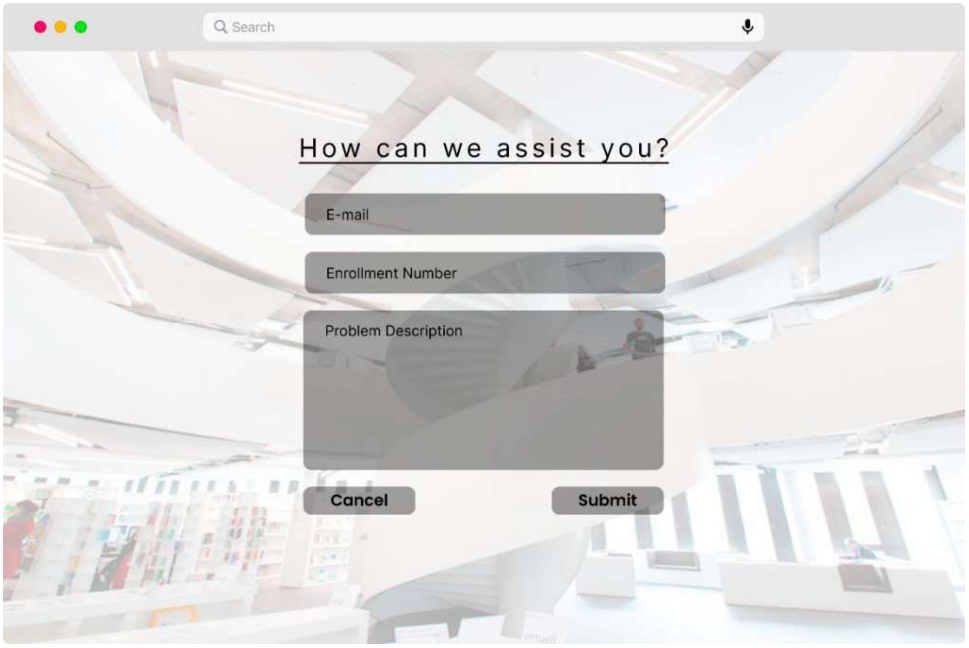

Figure 7-14: Dropify Support Page

Pressing the support button on the login and registration page redirects users to the support page. They are prompted to fill in E-mail, Enrollment number, and Problem description fields. Clicking the “Submit” button sends a request to the IT Department. If the “Cancel” button is pressed, the request is halted, and users are redirected to the login and registration page.

7.7 Deployment Diagram:

The Dropify platform is designed for easy use on different devices, including laptops, smartphones, and tablets. Its main components are stored in a web server, which also holds the HTML files. Data transfer between the web server and the program server is protected by HTTPS, which encrypts data in transit, protecting user information from interception and unauthorized access. The program server, running on the latest stable version of Apache 2.4.58, serves as the platform's operational engine. It connects to the mail server, which uses the SMTP (Simple Mail Transfer Protocol) protocol for efficient communication. The mail server resides within the Apache James Server 3.8.0 environment. The program server also interacts with the MySQL 8.0.35 database server, where user information, notification preferences, and file records are securely stored and organized. This connection is facilitated through the TCP/IP (Transmission Control Protocol/Internet Protocol) protocol, ensuring smooth data exchange between the program server and the database server.

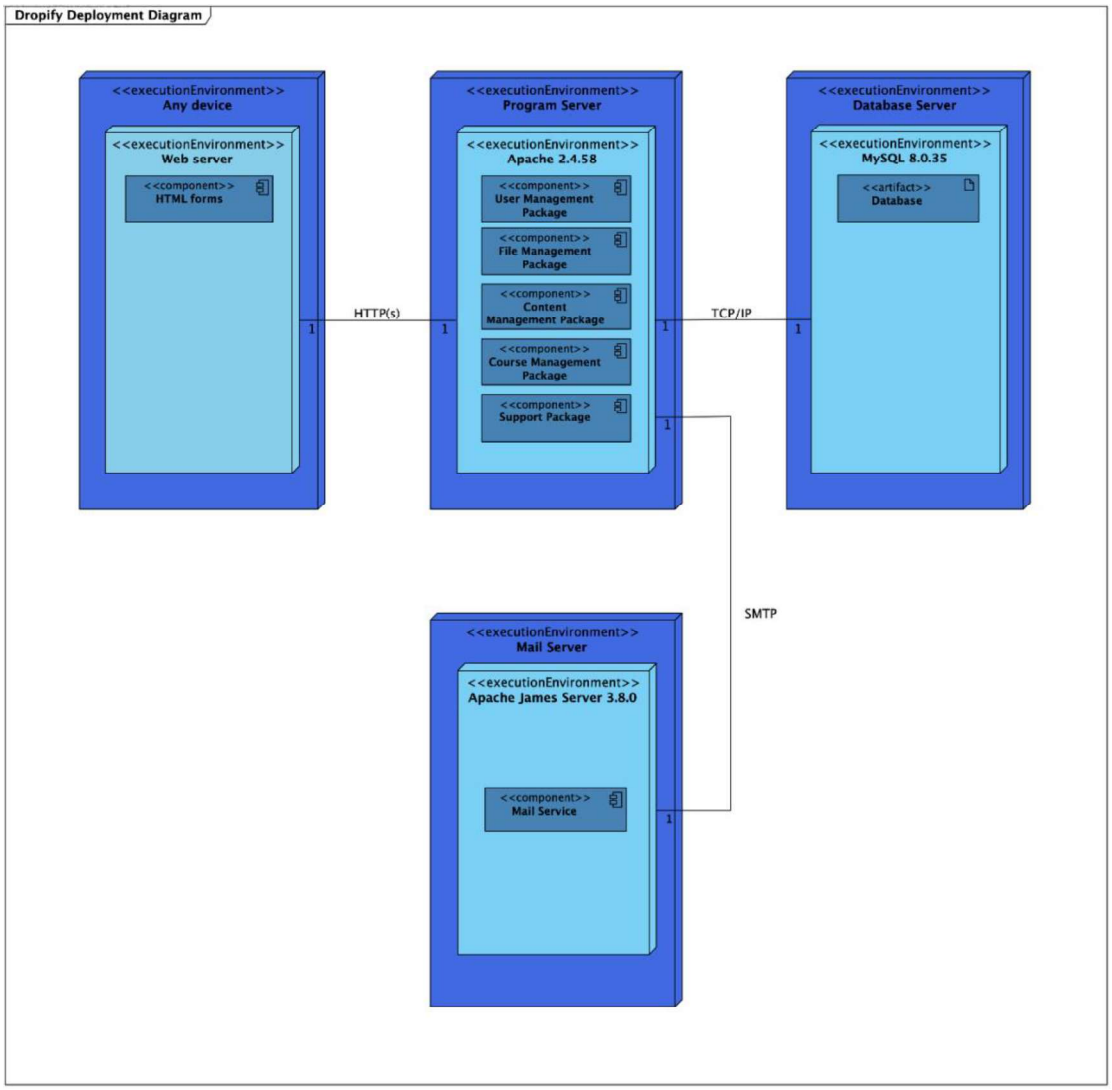

Figure 7-15: Deployment Diagram

7.8 Versions Compatibility:

Apache Version	MySQL Version	Apache James Server Version
2.4.58	8.0.35	3.8.0
2.4.56	8.0.34	3.7.4
2.4.54	8.0.33	3.6.8
2.4.52	8.0.32	3.5.12
2.4.50	8.0.31	3.4.4

Table 7-1: Apache, MySQL, Apache James Compatibility

8 Non-Functional Requirements

Category	Description
Efficiency	The system shall respond in ≤ 3s.
Efficiency	The system allows more than 100 users to use functions at the same time.
Portability	The website shall be compatible with PC, smartphones, and tablets for accessibility.
Portability	Responsive design for desktops, smartphones, and tablets.
Portability	The website shall support all existing browsers: Chrome, Safari, Opera, Firefox, Microsoft Edge etc.
Usability	Users shall understand the system within the first 6 minutes.
Functionality	The privacy of the system's data shall be maintained, preventing access by any third party without proper account authentication.
Reliability	The system shall be accessible 99.5% of the year.
Reliability	The system shall perform a backup every day at 2. am local time.
Maintainability	System bugs shall be fixed within 1 hour.
Compliance	Users shall agree with Terms & Conditions.
Security	The system shall implement security measures to protect user data and prevent unauthorized access.

Table 8-1: Non-Functional Requirements

9 Conclusion

Dropify serves as a tool to facilitate extensive knowledge sharing among students. Centralized access is a crucial aspect, and our requirements analysis outlines various approaches to access documents efficiently. The tool boasts a complex security structure and supporting tools to ensure the quality of data. Students can confidently rely on the platform, receiving information firsthand from peers who have consulted professors or collaborated with classmates. This collaborative environment strengthens the entire class.

While there are notable benefits, challenges such as bias in documents are acknowledged. To address this, we've implemented an AI module that meticulously checks each document. Additionally, security concerns were considered in the design of an account creation function.

To manage the vast amount of data on the platform, we incorporated a searching and filtering function, coupled with a user-friendly interface. Moodle and Teams, already integral to FHNW workflows, find a perfect complement in Dropify. Once implemented, Dropify will not only broaden data sharing for professors but also empower students in their collaborative efforts. This addition positively impacts FHNW Management's reputation, providing an expanded toolbox for students. The platform introduces valuable features, including real-time email notifications, and is exclusively accessible over the internet, enhancing versatility for all users.

Elicitation techniques, including group brainstorming, surveys, and interviews, were employed to gather requirements for Dropify. The findings informed the creation of a preliminary list of requirements. UML diagrams, activity, and sequence diagrams were subsequently generated to illustrate program functions and processes. Finalizing the use case diagrams required considerable effort, accompanied by continuous improvement. To solidify the concept, GUI mockups were created to offer a visual representation and an initial impression of the tool's potential appearance.

10 Reflection

Despite our diverse personalities, we formed a cohesive team and readily assisted each other. We appointed a project leader who delegated tasks among the team members. While this approach proved effective for the most part, challenges occasionally arose. This section highlights both the positive and negative aspects of our project experience.

10.1 Strengths:

Our team's considerable size has helped with our workload, making tasks more manageable and cutting them into small pieces which are easier to handle. The diversity of backgrounds within the group brings expertise to the table. Additionally, the presence of a group leader has helped with effective task allocation.

10.2 Weaknesses:

A primary challenge we faced was that some team members didn't fully engage during certain phases of the project. There was also a noticeable difference in the team's knowledge levels, which hindered collaborative learning. This disparity may have been due to a lack of ensuring that all team members had a clear understanding of the project's overall scope. Additionally, uneven task distribution occasionally led to inefficiencies throughout the project's execution. Furthermore, we had to revisit some parts of the project due to planning errors made in the early stages. Despite these challenges, the team's overall performance was respectable, particularly during the requirements gathering and finalization phases.

10.3 Opportunities:

A significant benefit of this experience was the opportunity to deepen our understanding by reviewing the work of our peers. This collaborative process fostered knowledge exchange and facilitated a deeper grasp of the subject matter. The challenges we encountered also provided a valuable learning opportunity, enabling us to sharpen our teamwork and communication skills. Since this project simulated a realistic work environment, it equipped us with valuable skills that can be effectively applied in future professional settings.

10.4 Threats:

The concept of «knowledge trapped in isolated compartments» can significantly impede our overall effectiveness. Breaking down these silos is indispensable for cultivating successful collaboration.

Additionally, a lack of accountability among team members can result in bottlenecks and diminish the quality of our collective output.

10.5 Lessons learned:

10.5.1 General learnings:

Dropify prepared us for future projects not only by providing valuable module content but also by enhancing our documentation skills. We learned how to effectively distribute tasks to maximize the utilization of each team member's expertise. While we aimed to maintain a consistent schedule, there were occasional delays that caused some stress towards the project's end. However, our collaborative efforts allowed us to overcome these challenges.
In addition to setting team-wide deadlines, each member was personally responsible for meeting their individual deadlines. This approach fostered a sense of accountability and ensured timely completion of assigned tasks. Throughout this experience, we gained valuable insights into the implementation of applications in real-world companies.

10.5.2 Used Tools:

To create comprehensive documentation, we utilized a range of tools, including Visual Paradigm, Enterprise Architect, and web GUI mockup tools like Figma and FluidUI. These tools broadened our skillset and enabled us to produce high-quality documentation.
While Visual Paradigm emerged as the most user-friendly option, we initially needed to familiarize ourselves with its interface to effectively produce diagrams.

To effectively manage the project, we employed a combination of Word for documentation, Excel for planning, Teams for remote meetings, WhatsApp for communication, and Google Drive for file storage and organization. These tools facilitated efficient collaboration and ensured the smooth execution of the project.

10.5.3 Module content:

The relevance of the class content proved useful in providing a general overview of how to proceed with our project. We also utilized numerous examples of past project work provided by the lecturers. Additionally, the slides provided detailed information on every step of the project. Finally, we also received guidelines on the weighting of this project work.

11 References

Formatting: „Literature entry“

Bräuer, Sebastian/Bode, Kim (2012): Die Herren des Finanzmülls. In: NZZ am Sonntag, 17. Juni 2012, 11. Jahrgang, Nr. 25, S. 31 [online]. URL: http://epaper.nzz.ch/nzz.asp?ticket=ST%2D425510%2D1JFjZxeTCPHxgiJsMz90%2Dcas [Stand: 24. Juni 2012].

11.1 Glossary

	Description
Dropify	Dropify represents the name of the platform.
FHNW	FHNW is the acronym for Fachhochschule Nordwest Schweiz.
BIT	BIT is the acronym for the Business Information Technology Bachelor.
DB	DB is the acronym for database.
Stakeholder	Stakeholders, within our context, represent actors that are involved in our project, independently of whether they are internal or external actors.
UC	UC is the acronym for use case. It is a package that contains requirements.
User	Within our project, the User is the group of people that includes the Head of BIT, BIT secretary, Professors, and Students. They access the platform on a daily basis.
HTTPS	HTTPS stands for Hypertext Transfer Protocol Secure. It is a secure version of the HTTP protocol used for secure communication over a computer network.
TCP/IP	TCP/IP stands for Transmission Control Protocol/Internet Protocol. It is the fundamental suite of protocols governing the Internet.
SMTP	SMTP stands for Simple Mail Transfer Protocol. It is a protocol used for email transmission.

Table 11-1: Glossary

11.2 List of Figures

11.3 List of Tables